

What is claimed is:

1. An assembly for insertion into a body passageway comprising:
  - a. a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway;
  - b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel being at least as long as said axial extent of said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition; and
  - c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter.
2. The assembly according to claim 1 wherein said blood vessel has a length longer than said longitudinal passage of said cylindrical-shaped member and said blood vessel extends beyond at least one of said first and second ends of said cylindrical-shaped member.
3. The assembly according to claim 2 wherein said blood vessel is folded over a respective edge of said end and overlies at least a portion of the external surface of said peripheral wall of said end.
4. An assembly for insertion into a body passageway comprising:
  - a. a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway;
  - b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel having a length longer than said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition, wherein said blood vessel extends beyond both of said ends and is folded over respective edges at both of said ends; and
  - c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter.
5. The assembly according to claim 1 or 4 wherein said structural member is in the form of a wire formed into a serpentine configuration including a plurality of loops with cusps of adjacent loops in opposing orientation forming an overlap region which adjusts to provide said first and second diameters.
6. The assembly according to claim 1 or 4 wherein said cylindrical-shaped member is a thin walled tubular member,

60 50 40 30 20 10

and said one or more structural members define openings in the form of slots being disposed substantially parallel to the longitudinal axis of the tubular member, said slots being deformable to a fixed shape forming a fixed framework to support said blood vessel.

7. The assembly according to claim 1 or 4 wherein said one or more structural members have a substantially uniform thickness which is maintained during adjustment between first and second positions defining said first and second diameters which are outer diameters of said cylindrical-shaped member.

8. The assembly according to claim 1 or 4 wherein said securing means comprises glue.

9. The assembly according to claim 1 or 4 wherein said securing means comprises welds.

10. The assembly according to claim 1 or 4 wherein said securing means comprises stitches.

11. An assembly for insertion into a body passageway comprising:

- a. a cylindrical-shaped member having first and second ends, longitudinal axis between said ends, one or more structurally members between said ends defining a peripheral wall, and longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway;
- b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel having a length longer than said axial extent of said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition, and wherein said blood vessel extends beyond at least one of said first and second ends of said cylindrical-shaped member, said blood vessel is folded over a respective edge of said end and overlies at portion of the external surface of said peripheral wall of said end, and wherein said blood vessel encompasses the entire external surface of said cylindrical-shaped member; and
- c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter.

12. An assembly for insertion into a body passageway comprising:

- a. a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway;
- b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel being at least as long as said axial extent of said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition;

## 15

c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter; and

d. a delivery sheath which encompasses said cylindrical-shaped member and said blood vessel.

13. A assembly for insertion into a body passageway comprising:

a. a cylindrical-shaped member having first and second ends, longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway;

b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel being at least as long as said axial extent of said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition;

c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter; and

d. expansion means within said cylindrical-shaped member for radially expanding said cylindrical-shaped member within a body passageway.

14. The assembly according to claim 13 wherein said means for radially expanding is a balloon catheter, said balloon catheter being received within said longitudinal passage and extending along said longitudinal axis, whereby as said balloon catheter is inflated, said balloon contacts said blood vessel and said cylindrical-shaped member to radially expand said blood vessel and said cylindrical-shaped member.

15. An assembly for insertion into a body passageway comprising:

a. a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends, said cylindrical-shaped member having a first diameter which permits intraluminal delivery of said cylindrical-shaped member into a body passageway having a lumen, and second diameter greater than said first diameter, whereby said cylindrical-shaped member is expandable to contact or to expand the lumen of the body passageway and wherein said one or more structural members are adjustable to said second diameter by deformation, by stress relief, by hinges between said structural members, or by increasing the thickness of said structural members;

b. a blood vessel within said longitudinal passage of said cylindrical-shaped member, said blood vessel being at

09151374-091698  
069760-12375760

## 16

least as long as said axial extent of said longitudinal passage and having a radial extent corresponding to the radial extent of said peripheral wall when said cylindrical shaped member is in an expanded condition; and

- 5 c. securing means for securing said blood vessel within said cylindrical-shaped member to cause said blood vessel to move with said cylindrical-shaped member to and from said first diameter and said second diameter.

16. The assembly according to claim 1, 3, 4, 11, 12, 13, 10 or 15 wherein said blood vessel is a vein.

17. The assembly according to claim 1, 3, 12, 13, or 15 wherein said blood vessel has a length about as long as said longitudinal passage of said cylindrical-shaped member.

18. A method for implanting a composite graft within a 15 body passageway comprising:

- a. providing a composite prosthesis comprising an expandable member comprising a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and 20 a longitudinal passage along said longitudinal axis between said ends; and a blood vessel carried by said cylindrical-shaped member within said longitudinal passage, said blood vessel being at least as long as said axial extent of said longitudinal passage and having a 25 radial extent corresponding to the radial extent of said peripheral wall when said cylindrical-shaped member is in an expanded condition;

b. disposing said prosthesis on a catheter;

- 30 c. inserting said prosthesis and catheter within a body passageway by catheterization of the body passageway; and

d. expanding said prosthesis to bring said prosthesis into contact with the body passageway and to implant said 35 prosthesis in the passageway.

19. The method according to claim 18 wherein the expanding of said prosthesis causes enlargement of the lumen of the body passageway.

20. A method for forming a composite graft comprising:

- 40 a. providing an expandable member comprising a cylindrical-shaped member having first and second ends, a longitudinal axis between said ends, one or more structural members between said ends defining a peripheral wall, and a longitudinal passage along said longitudinal axis between said ends; 45

b. providing a blood vessel having a length greater than the axial extent of said passage of said cylindrical-shaped member;

- 50 c. positioning the blood vessel within said longitudinal passage of said cylindrical-shaped member so that a portion of said blood vessel protrudes from at least one of said ends;

55 d. folding said protruding portion of said blood vessel over the edge of said end and over at least a portion of the external surface of said peripheral wall; and

e. securing said blood vessel to said cylindrical-shaped member.

21. The method according to claim 20 wherein step (c) is 60 conducted so that the blood vessel protrudes from both of said ends and step (d) is conducted at both of said ends.

\* \* \* \* \*

ADD  
D17

ADD  
D17

ADD  
G37

ADD  
J14

09154274-091698